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95-156251/21 A60 D21 E24 F06 HENK 93.10.19
HENKEL KGAA *DE 4335627-A1
93.10.19 93DE-4335627 *(95.04.20)* A61K 7/13, C07C 49/755, C09B 57/00, D06P 3/04

Use of 1,3-propane dione cpds to dye keratin and other fibres, esp human hair - with amino cpds, heterocyclic cpds contg nitrogen or aromatic hydroxy cpds, avoiding use of oxidising agents

C95-071991
Addnl. Data: MOELLER H, HOEFFKES H

1,3-Propane dione cpds. of formula

$$C(O)(R_3)C(R_2)C(O)CR_1 \text{ (I)}$$

or their acetals or ketals, are used to dye fibres contg. keratin.
R_1, R_2, R_3 = H, 1-4C alkyl, carboxyalkyl or oxoalkyl, 2-4C hydroxyalkyl, furyl, thienyl, pyridyl, or Ph, benzyl or benzoyl (substd. with 1-4C alkyl, alkoxy or alkylamino, amino, OH, NO_2, COOH, sulpho or halogen; or
R_1 and R_3 together form an (un)satd. 5-, 6- or 7-member ring, opt. contg. O, opt. substd. with 1-4C alkyl, Ph, OH, or oxo, and opt. condensed with an aromatic ring system.

A(8-E3, 12-S5N, 12-S5P) D(8-B3, 8-B6) E(25-E) F(3-F2, 3-F3, 3-F4, 3-F5, 3-F6, 3-F7, 3-F9, 3-F10, 3-F16, 3-F21, 3-F22)

USE

The keratin fibres are esp. wool, fur, skins and human hair. Other natural fibres, e.g. cotton, jute, sisal, linen or silk, modified natural fibres, e.g. regenerated cellulose, and nitro-, alkyl-, hydroxyalkyl- or acetyl-cellulose, and synthetic fibres, e.g. polyamide, polyacrylonitrile, polyurethane and polyester fibres, can also be dyed.

ADVANTAGE

The fibres can be dyed in absence of an oxidising agent. When (I) is used with cpds. contg. prim. or sec. amino gps., a heterocycle contg. N, or an aromatic OH cpd., brilliant yellow, brown, green and violet shades, resistant to light, washing and rubbing, are obtd.

PREFERRED COMPOSITION

A compsn. for dyeing keratin fibres, esp. human hair, contains (a) (I), (b) a cpd. with prim. or sec. amino gps., a heterocycle contg. N or an aromatic OH cpd., and (c) an aq. carrier. Esp., the compsn. contains w.r.t. 100g of dye, (a) 0.3-65 (6-20) mmols of (I), and (b) 0.3-65 (6-20) mmols of an aminoacid or an oligopeptide formed from 2-9

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aminoacids, esp. tyrosine, histidine, lysine, phenylalanine, ornithine, DOPA, arginine or tryptophane, or a cpd. contg. an amino gp., a heterocycle contg. N or an aromatic OH cpd.

EXAMPLE

A mixt. of 100 ml of water, 10 mmols of 1,3-indane dione, 10 mmols of Na acetate, 1 drop of a 20% aq. soln. of 'Texapon N25' (RTM) and (i) no additive, or (ii) 10 mmols of p-toluylene diamine H_2SO_4, was heated to the boil, filtered, and brought to pH 6. Untreated human hair, 90% grey, was treated with the compsn. for 30 mins. at 30 °C. The hair was (i) medium to deep copper, or (ii) deep moderate-brown.(SV)
(7pp510DwgNo.0/0)

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98-559100/48 D21 E19 **HENK 97.04.24**
HENKEL KGAA *EP 873745-A2
97.04.24 97DE-1017222 *(98.10.28)* A61K 7/13

Hair dye compositions containing keto- and/or aldehyde compound as colour forming component - together with compound with primary or secondary amino groups or hydroxy groups and colour strengthening agent (Ger)

C98-167433 R(AL AT BE CH CY DE DK ES FI FR GB GR IE IT LI LT LU LV MC MK NL PT RO SE SI)
Addnl. Data: MOELLER H, HOEFFKES H, MEINIGKE B
98.04.15 98EP-106833

A hair dye composition(s) for dyeing keratinic fibres, especially human hair, contains:
(A) one or more keto- and/or aldehyde compounds which colour keratinic fibres either alone or in the presence of a compound of type (B);
(B) at least one compound with primary or secondary amino groups or hydroxy groups selected from primary and secondary aliphatic or aromatic amines, N-containing heterocyclic compounds, aminoacids, oligopeptides made up of 2-9 aminoacids and aromatic hydroxy compounds, and/or at least one CH-active compound; and

D(8-B6) E(6-A2E, 7-D, 10-A6A, 10-B1, 10-B2, 10-B3, 10-B4, 10-D1, 10-F2, 26-C)

(C) a colour strengthening agent (booster) selected from piperidine, pyridine, imidazole, pyrrolidine, pyrrolidone, pyrazole, triazole, piperazidine, derivatives of these and their salts;
provided that (B) and (C) are different.

USE

The composition is useful for dyeing keratinic fibres in the form of hair, wool and pelts, especially human hair.

ADVANTAGE

The compositions are virtually a non-irritant to the skin. A wide range of colour shades can be formulated. The colours produced are at least as good as those formed by conventional oxidation dye formulations with respect to colour depth, fastness and covering power over grey without it being absolutely necessary to include oxidising agents such as H_2O_2 into the dye mix.

SPECIFIC COMPOUNDS

Approximately 185 specific primary and secondary amine

compounds, N-containing heterocyclic compounds, aromatic OH compounds and CH-active compounds suitable as component (B) are claimed, e.g:
N-(2-hydroxyethyl)-N-ethyl-phenylenediamine;
4-aminophenol;
p-phenylenediamine;
2,5-diaminotoluene;
3,4-methylene-dioxyaniline;
2,6-dihydroxy-3,4-dimethylpyridine;
5,6-dihydroxyindole; and
barbituric acid, and their salts.

17 Specific compounds suitable for use as component (C) are claimed, e.g:
piperidine;
piperidine-2-carboxylic acid;
piperidine-3-carboxylic acid;
piperidine-4-carboxylic acid;
pyridine;
2-hydroxypyridine;
3-hydroxypyridine;
histidine;
pyrrolidine;
pyrrolidone; and
pyrazole, and their salts.

PREFERRED COMPOSITION

Component (A) is selected from e.g. aromatic and heteroaromatic aldehydes and ketones, 1,3-carbonyl compounds, 1,2-diketones, isatin and derivatives, ninhydrin and derivatives, alloxan, isobarbituric acid, aminoacrolein derivatives and p- and o-quinone derivatives. The dye composition contains 0.03-65 (1-40) mMol each of (A) and (B) per 100 g composition. Anionic, zwitterionic and/or nonionic surface active agents may also be incorporated. The dye composition when ready for use may contain 0.01-6 wt. % of an oxidising agent such as H_2O_2.

EXAMPLE

10 mMol glutaconic aldehyde, 10 mMol N,N-bis-(2-hydroxyethyl)-p-phenylenediamine HCl, 10 mMol piperidine (booster), 10 mMol Na acetate and 1 drop 20 % fatty alkyl ether sulphate solution were mixed in 100 ml water, the slurry heated to 80 °C for a short time, cooled and filtered. The pH was adjusted to 6, then strands of 90 % grey hair were dyed in the dye solution for 30

minutes at 30 °C, rinsed and dried. The hair was dyed in a blue-black shade with very strong colour intensity. (LME)
(14pp0513DwgNo.0/0)

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